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The Effects of the Bing Law

By J. B. McCLELLAND

OHIO requires of her boys and girls more days of attendance at school than are required by any other state. Idaho, Utah, Nevada, and Oklahoma, in addition to Ohio, require attendance until the age of eighteen unless the child is excused by certificate, but a smaller total number of days of school attendance is required in the other four states, either because an older age of entrance is specified, or because the minimum school year is shorter than in Ohio.

The Bing Law, since its passage in 1921, has kept Ohio in the front ranks of the states having compulsory-attendance laws. Its opponents claim it has forced so many young people into school that costs have been increased extravagantly. They argue that the law should be changed to reduce the age limit and thus reduce taxes.

No one can deny that the cost of education has increased greatly during recent years. The total expenditure for public elementary and secondary education in Ohio increased from $36,455,375 in 1914 to $167,756,874 in 1929—an increased cost of 360 per cent. Expenditures increased each year from 1914 to 1928, when the total amounted to $168,353,903. It is of interest to note that the total cost in 1929 was $597,029 less than that of 1928.[1]

An analysis of the factors causing the increase of school costs in Ohio and a comparison of these increases of costs with the increases in the United States as a whole and in neighboring States should show something about the influence of the Bing Law. A comparison of the percentage of children of school age who are enrolled in school in Ohio with the percentage enrolled in the United States and in neighboring states should also be of

[1] *Annual Reports of the State Superintendent of Public Instruction of Ohio*, 1914, 1928, 1929.

value in determining whether the Bing Law is actually bringing to school a great many more children than are attending in states where the maximum age limits are lower.

A METHOD of analyzing the increase in cost of education in Ohio is suggested by an analysis of public-school costs in the United States from 1914 to 1926 which was made by J. K. Norton, director of research for the National Education Association. Norton shows that school costs in the United States increased from $555,077,000 in 1914 to $2,026,308,000 in 1926, an increase over the 1914 figure of 265 per cent (*see*

TABLE I

ANALYSIS OF FACTORS CAUSING INCREASE IN PUBLIC-SCHOOL COSTS FROM 1914 TO 1926

YEAR	COST OF PUBLIC EDUCATION, ELEMENTARY AND HIGH SCHOOL	INCREASE OVER 1914	AMOUNT OF INCREASE CHARGEABLE TO:		
			Increased Attendance	Depreciation of the Dollar	Other Factors
	United States[a]				
1914.....	$ 555,077,000	.....	.....	.....	.....
1926.....	$2,026,308,000	$1,471,231,000	$371,901,590	$697,087,900	$402,241,510
	Ohio[b]				
1914.....	$ 36,455,375	.....	.....	.....	.....
1926.....	$ 140,178,271	$ 103,722,896	$ 22,128,413	$ 44,055,009	$ 37,539,474

[a] Norton, *op. cit.*, p. 286.
[b] U. S. Bureau of Education. *Biennial Survey for 1925-26.* Washington, D. C., 1928.

Table I). He attributes 67 per cent of the $1,471,231,000 increased cost to increased attendance, 126 per cent to the depreciated purchasing power of the dollar, and 27.3 per cent to other factors, such as new courses and new curriculums, more evening schools, higher standards of teacher training, better buildings, and improved equipment.[2]

In figuring the amount of the increased cost that should be charged to increased attendance, Norton points out that it is necessary to take into consideration the fact that high-school education costs approximately two and one-half times as much per pupil as elementary education. The figures for attendance are accordingly weighted by multiplying the number of pupils'

[2] Norton, J. K. "Additional Light upon School Costs," *National Education Association Research Bulletin,* VI (November, 1928), pp. 283-84.

days of schooling provided in high school by 2.5 and adding this figure to the number of pupils' days of schooling provided in elementary schools. By following this procedure it was found that increased attendance would account for an increase in school costs over the 1914 figure of 67 per cent, or, as shown in Table I, $371,901,590.

The index number used by Norton to determine the amount of the increase that should be attributed to depreciation of the purchasing power of the dollar is that of the National Industrial Conference Board which is worked out especially for educational services and materials.[3] According to the Conference Board, $175.20 purchased the same amount of educational services and materials in 1926 as $100 in 1914, hence, $926,978,590 (the 1914 cost plus the increase due to increased attendance) was multiplied by 75.2 per cent, which gives $697,087,900, the amount that should be attributed to the depreciation of the dollar.

The remainder of the increase, $402,241,510, which is placed under the heading, "Other Factors," might be attributed to increased efficiency. This increase in cost, Norton points out, has been brought about largely by a definite improvement in the quality of education supplied. Standards of teacher training have been raised, and higher salaries have to be paid for teachers who are better equipped. New courses and new curriculums, particularly vocational courses, have been added, and summer and evening classes have been expanded. Improved buildings and equipment and improved transportation facilities for rural children are other ways in which the efficiency of our schools has been increased.

THE analysis of factors causing the increase in public-school costs in Ohio from 1914 to 1926 was made by applying Norton's procedure to data obtained from the annual reports of the Ohio state superintendent of public instruction for 1914 and 1926 and from the *Biennial Survey for 1925-26* prepared by the Office of Education at Washington. These figures are given in the lower portion of Table I.

The aggregate days of attendance of elementary students in Ohio in 1914 was 108,115,215, while the aggregate days of

[3] National Industrial Conference Board. *Cost of Government in United States, 1926-1927*, pp. 16-21.

attendance in high school was 13,638,807. Multiplying the latter figure by 2.5 and adding the figure for elementary attendance gives a weighted figure for attendance of 142,212,232. The weighted figure for 1926, obtained in a similar way, is 228,553,458, which represents an increase of 60.7 per cent over the 1914 figure. Thus, as shown in Table I, $22,128,413 (60.7 per cent of the 1914 cost) represents the increase in Ohio costs that can be attributed to increased attendance. The amount of the Ohio increase that was due to the depreciation of the purchasing power of the dollar was also obtained by following Norton's procedure, as explained in preceding paragraphs. The remainder of the increase was attributed to "Other Factors," or increased efficiency, as in the study of increased costs in the United States.

TABLE II

PERCENTAGE OF INCREASE IN PUBLIC-SCHOOL COSTS FROM 1914 TO 1926 CHARGEABLE TO VARIOUS FACTORS, UNITED STATES AND OHIO

	Percentage 1926 Costs Increased Over 1914 Costs	Percentage Chargeable to Increased Attendance	Percentage Chargeable to Depreciation of the Dollar	Percentage Chargeable to Other Factors
United States	265	67	126	72
Ohio.....	284	61	120	103

Table II compares on a percentage basis the data concerning increased costs which is given in Table I. As shown by this table, the total expenditure for education in Ohio in 1926 increased 284 per cent over the figure for 1914, while the increase in the United States for the same period was 265 per cent. This table shows that the slightly higher increase in costs in Ohio cannot be attributed to a greater increase in attendance due to the Bing Law, for the amount of the increased cost that can be so charged was only 61 per cent in Ohio as compared with 67 per cent in the United States as a whole.

Since a smaller proportion of the increased costs in Ohio is due to the attendance factor, a larger percentage than in the United States is charged to other factors which, as has been noted, include many kinds of improved educational service including better-trained teachers, better buildings and equipment, and a wider variety of courses.

Table III was compiled from data which was obtained from annual reports of State Directors of Education, from reports of the United States Commissioner of Education, and from population estimates of the United States Census Bureau. They show that while the expenditure per capita of population in Ohio for education in 1926 was nearly $4 higher than that of the United States as a whole, the expenditure was not far out of line with that of Pennsylvania and Indiana, and, moreover, that the percentage of increase in expenditure per capita of population was lower in Ohio than in the United States or in either Pennsylvania or Indiana.

Those who advocate lowering the upper age limit of the Bing Law will probably point out that by far the greatest

TABLE III

EXPENDITURE FOR PUBLIC EDUCATION PER CAPITA OF POPULATION, 1914 TO 1926

Year	United States	Ohio	Indiana	Pennsylvania
1914.....	$ 5.62	$ 7.25	$ 5.99	$ 6.37
1918.....	7.26	10.54	7.96	7.87
1922.....	14.47	20.07	20.42	12.51
1926.....	17.30	21.23	22.31	20.40
	Percentage of Increased Expenditures			
1918.....	29	45	33	23
1922.....	157	177	241	96
1926.....	208	193	272	220

increase in per capita costs in Ohio came between 1918 and 1922, or during the period when the Bing Law (1921) first went into effect. It should be noted, however, that during this same period per capita cost in Indiana increased a great deal more than it did in Ohio. Indiana in 1921 passed a compulsory-attendance law similar in many respects to that of Ohio, with the exception that the upper age limit is sixteen and employment certificates may be obtained at the age of fourteen. Apparently, then, judging by Indiana's experience, merely lowering the age limit two years would not reduce school costs in Ohio to any great extent.

From data included in the *Biennial Surveys* from 1914 to 1926, an increase of 4.5 per cent in the percentage of five to seventeen-year-old children enrolled in school in Ohio from

1918 to 1922, the four-year period during which costs increased most rapidly (*see* Table III) and the period during which the Bing Law went into effect, was shown. However, during the same period the percentage of children in the United States going to school increased 5.9 per cent, or 1.4 per cent more than the increase in Ohio, and in Indiana there was an increase of 6 per cent, or 1.5 per cent more than in Ohio. During the next four-year period, 1922 to 1926, Ohio's percentage of children of school age attending school increased 4.4 per cent, or almost as much as from 1918 to 1922, and yet expenditures per capita of population increased only 5 per cent during the latter period as compared with an increase of 90 per cent from 1918

TABLE IV

PERCENTAGE OF POPULATION OF CHILDREN FIVE TO SEVENTEEN YEARS OF AGE INCLUSIVE ENROLLED IN PUBLIC SCHOOLS[a]

Year	United States (Per Cent)	Ohio (Per Cent)	Indiana (Per Cent)	Pennsylvania (Per Cent)
1916.....	75.8	74.3	80.2	70.9
1918.....	75.3	76.4	79.1	69.1
1920.....	77.8	76.6	79.4	71.5
1922.....	81.2	80.9	81.9	73.1
1924.....	82.2	84.1	85.4	74.8
1926.....	82.3	85.5	86.0	74.6

[a] Adapted from U. S. Bureau of Education, *Biennial Surveys*, 1914-1916 to 1924-1926.

to 1922. There was evidently little or no correlation between increased attendance and increased costs.

Ohio made more progress between 1916-26 in the percentages of five-year-old to seventeen-year-old children enrolled in school than was made by the United States as a whole or by Indiana or by Pennsylvania.

The reader will recall that the increased costs in Ohio attributed to increased enrollment was less than that for the country as a whole (*see* Table II). This apparent discrepancy between Table II and Table IV, with regard to attendance, is probably due to the fact that in 1914 there was a higher proportion of high-school students, as compared with elementary students, in Ohio than in the United States as a whole.[4] While Ohio has progressed in the percentage of pupils going to high

[4] Adapted from the *Annual Reports of the State Superintendent of Public Instruction of Ohio* for 1914 and 1926 and the *Biennial Surveys*.

school, the percentage of increase since 1914 has not been nearly so great as the increase in the United States as a whole. This, of course, tends to decrease the weighted increase in attendance in Ohio, as compared with the weighted increase in the United States, for the increase in high-school attendance counts 2.5 times the increase in elementary attendance. The trend of population in Ohio, when compared with the trend in the United States, may also have affected the situation somewhat.

THE total cost of education in Ohio from 1914 to 1926 increased 284 per cent over the cost of the first year designated, while the increase in the United States as a whole for the same period was 265 per cent. However, the increased cost in Ohio which could be attributed to greater attendance was only 61 per cent, while the increase in the United States due to attendance was 67 per cent.

The increased expenditure for education per capita of population from 1914 to 1926 in Ohio, measured on a percentage basis, was less than increases in the United States, and also less than the increases in Indiana and Pennsylvania for the same period. The percentage of five-year-old to seventeen-year-old children going to school increased less during the period from 1918 to 1922 in Ohio than in the United States as a whole or in Indiana. The increase in school costs per capita of population was greater during this period in Ohio than in the United States as a whole, but less than the increase in cost in Indiana. Although attendance increased almost as much in Ohio from 1922 to 1926 as from 1918 to 1922, an increase in costs similar to that from 1918 to 1922 did not occur in the latter four-year period. It is evident, therefore, that the increased attendance due to the Bing Law has not been an important factor in increasing school costs in Ohio, and that the repeal of the law or the lowering of the upper age limits would probably not reduce school costs to any great extent.

Kindergarten-Primary Articulation

By JOSEPHINE MACLATCHY

TERMAN has said that the greatest gap in the school system may occur between the kindergarten and the first grade. This is especially true if the kindergarten deserves the designation "progressive," and the first grade is organized according to scholastic tradition. Within some school systems, so-called "pre-primary classes" are provided: sometimes these groups included all five-year-olds, sometimes only retarded six-year-olds. There are, fortunately, simpler devices which will accomplish the desired affiliation between the home or the kindergarten and the primary grades. There are administrative measures which will encourage the articulation of the two educative instruments; such as, similar supervisors for kindergarten and primary, a system of continuous records, similar schedules, and the frequent visits of the pupils from one room to the other. There are items of equipment which will assist in lessening the formalized practices of the primary grades, such as chairs and tables which may be moved about, cages for pets, workbenches and tools, sand tables, and materials for handwork. Methods of instruction may be arranged to utilize the child's interests and activities in his own mastery of the rudiments.

The delineation of the status of kindergarten-primary articulation throughout the country is the purpose of this study which was begun by the writer two years ago in a dual capacity, as a member of the staff of the Bureau of Educational Research, at Ohio State University, and as a member of the Research Committee of the International Kindergarten Union. Unfortunately, the questionnaire is the chief means by which the information needed in this study can be gathered. Since school superintendents and kindergarten-primary supervisors share with other busy persons a reluctance to squander time filling out a questionnaire which may never be used, this article is to serve as a guaranty that each item on each returned questionnaire in this study is appraised and recorded. We plan to launch a follow-up campaign hoping to raise the proportion of returns to 100 per cent, if possible. The co-operation of superintendents, supervisors, principals, and teachers is solicited.

We have asked for superintendents' reports, child-account-

ing records, time schedules, and courses of study. These will all be analyzed to gather whatever data they may contain to supplement the information gathered from the questionnaires.

THREE questionnaires have already been sent out. From the replies to the first questionnaire, which was sent to 757 cities with populations of ten thousand or more, the facts given in the following summary were gathered:

Status of Articulation	Number of Cities Represented
No kindergarten in the public schools	310
Kindergarten but no effort toward articulation	60
Pre-primary but no kindergarten	4
Articulation attempted:	
Kindergarten through Grade I	125
Kindergarten, pre-primary, Grade I	4
Kindergarten through Grade II	52
Kindergarten, pre-primary, Grade II	2
Kindergarten through Grade III	113
Kindergarten with attempted articulation, the upper grade unknown	31
Total	701

More than half of the 701 cities which replied to this first questionnaire either had no kindergarten in the public schools or were making no effort toward articulation.

Five varieties of articulation judged by the school units involved could be distinguished from the replies given to the third question. The 31 cities in which articulation was attempted, but in which the upper-grade limit was not indicated, are included in the table, and will be included in the study as well, with the hope that the replies to the subsequent questions will indicate the classification to which each of these cities should belong. The limits of the field of search are defined by those classes included under the heading in the table, "Cities Attempting Articulation," to which will be added the three cities which have pre-primary instruction but no kindergarten. This gives a total of 331 cities to which the study of the status of kindergarten-primary articulation is, at present, limited. By checking against the appropriate tables of the latest available United States Commissioner's *Biennial Survey of Education* an effort will be made to determine the status of the 55 cities which did not reply to the first short questionnaire.

THE second questionnaire, entitled "Furniture, Equipment, and Supplies," was sent to the superintendents of the 331 cities just mentioned. One hundred seventy-four completed questionnaires were returned—the records for the results of one follow-up letter are included in this count. To the 174 cities which completed the second questionnaire, the third questionnaire, "The Administration of Unified Kindergarten-Primary Programs," was sent. So far, 115 completed forms have been returned. An analysis of these returns from the cities grouped by population is given in Table I. The second column of this table shows the distribution of the 331 cities in which

TABLE I

NUMBER OF COMPLETED QUESTIONNAIRES WHICH HAVE BEEN RETURNED FROM CITIES OF VARIOUS POPULATION GROUPS[a]

Population Groups	Cities Attempting Articulation	Cities Returning "Furniture, Equipment, and Supplies"	Cities Returning "Administration of Kng.-Primary Programs"
(1)	(2)	(3)	(4)
10,000-30,000	173	102	68
30,000-50,000	56	25	15
More than 50,000	102	47	32
Total number of cities	331	174	115

[a] The questionnaires received as a result of a second request have not been included here.

some form of articulation is attempted, and these cities are grouped by figures of population. One hundred seventy-three have populations ranging from ten thousand to thirty thousand, 56 from thirty thousand to fifty thousand, and 102 have more than fifty thousand. The returns on the first issues of these two questionnaires are 53 per cent and 35 per cent, respectively. Each questionnaire was, of necessity, long, and in a large school system took some time to fill out.

Questionnaires were sent to the superintendents of schools in 42 states, and returns have so far been received from the schools of 29 states. The questionnaires were also sent to the directors of all practice schools which belong to kindergarten and primary teacher-training institutions. The tables for the records of these practice schools are not yet completed, but records from 62 institutions have been received.

Since follow-up methods have to be used, the compilation of a table is not closed until all such work on a questionnaire is completed. For this reason only the tables for cities of from ten thousand to thirty thousand population have been totaled, and these only temporarily for purposes of discussion here. The two tables summarizing the reports for one group of items, classroom furniture, for kindergarten and Grade I are combined in Table II.

Expressed in terms of the percentages of kindergarten rooms within the school systems which are equipped with these items of furniture, the records of the 102 cities with populations from ten thousand to thirty thousand are summarized. Ninety-five per cent of these cities provide tables and chairs for all the kindergarten rooms in the systems, 4 per cent provide movable chairs and tables, while 1 per cent provide tables and chairs for less than 20 per cent of their rooms, and fixed seats and desks for more than 70 per cent of them. Display boards, low cupboards, low blackboards, and sand tables are provided for all their kindergartens by two-thirds of these cities. Low library tables, bookcases, and easels are provided by about half of them, and workbenches and cots by about one-quarter.

If, with the exception of "fixed seats and desks," we accept the items mentioned in this table as the *sine qua non* for the desirable furnishing of the primary rooms, the lower half of Table II presents a less pleasing picture, while those for Grades II and III, which are not included from lack of space, are still less. One-third of the cities have all their first-grade rooms equipped with tables and chairs or movable desks; the second-grade and third-grade rooms are similarly equipped by one-quarter of the cities. While only one-third of the cities have all their first-grade rooms equipped with screwed-down desks and seats, 52 per cent of them so equip all their second grades and 58 per cent of them all their third grades.

Low blackboards are provided for all the primary rooms by about three-quarters of these cities, while display boards and bookcases are almost as common. Library tables and low cupboards are less common and are found less often in all the second and third grades than in the first. Workbenches are certainly not common, for 87 per cent of the cities either do not provide them for the first grade or neglect to mention them.

TABLE II

PERCENTAGE OF KINDERGARTEN AND FIRST-GRADE ROOMS IN THE SCHOOL SYSTEMS OF THE CITIES WITH POPULATIONS FROM TEN THOUSAND TO THIRTY THOUSAND HAVING THE INDICATED ITEMS OF EQUIPMENT

	PERCENTAGE OF ROOMS WITHIN THE SYSTEMS											
	100 –91	90 –81	80 –71	70 –61	60 –51	50 –41	40 –31	30 –21	20 –11	10 –1	0	Omitted
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Kindergarten Rooms											
Tables and chairs	95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Movable desks	4	.....	.....	.....	.....	.....	.....	.....	1	.....	52	43
Fixed seats and desks	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	53	46
Display boards	65	1	1	2	.....	1	1	.....	.....	.....	16	13
Low blackboards	68	2	.....	.....	.....	1	.....	.....	.....	.....	18	11
Low cupboards	65	1	6	.....	1	1	3	5	2	.....	8	8
Individual cupboards	18	.....	.....	.....	4	.....	2	3	5	.....	37	31
Bookcases	45	.....	1	1	1	4	2	3	1	.....	25	17
Low library tables	54	.....	.....	.....	1	1	1	1	.....	.....	23	19
Sand tables	70	.....	5	.....	.....	4	.....	1	.....	.....	4	16
Workbenches	28	.....	1	.....	1	2	3	2	5	.....	31	27
Easels	42	2	.....	1	1	5	.....	4	5	.....	24	16
Cots and rugs	28	1	2	.....	.....	3	1	.....	4	.....	33	28
	First-Grade Rooms											
Tables and chairs	25	2	5	5	2	5	1	5	6	5	17	22
Movable desks	11	1	1	2	.....	5	5	6	11	7	25	26
Fixed seats and desks	33	12	10	6	2	4	6	6	4	.....	9	8
Display boards	66	1	4	2	.....	3	4	2	1	.....	6	11
Low blackboards	78	1	2	2	1	.....	1	3	1	2	3	6
Low cupboards	35	1	2	.....	.....	1	1	5	5	.....	27	23
Individual cupboards	10	.....	2	.....	.....	.....	.....	3	6	.....	43	36
Bookcases	64	4	2	.....	.....	1	3	.....	2	4	10	10
Low library tables	58	5	1	2	1	1	4	4	1	.....	3	20
Sand tables	45	2	4	4	4	4	6	2	7	2	11	9
Workbenches	4	.....	.....	.....	.....	1	2	1	5	.....	46	41
Easels	13	1	2	1	.....	2	3	2	5	.....	39	32
Cots and rugs	5	.....	.....	.....	.....	.....	1	1	1	1	49	42

Similar percentages for the second and third grades were 94 and 96. Only 4 per cent of these cities provide workbenches in all their first grades, and only 1 per cent in all their second and third grades.

From Table II we may conclude that the average city provides tables and chairs, display boards, low cupboards, low blackboards, low library tables, and sand tables for all their kindergartens. The first-grade equipment includes display boards, low cupboards, bookcases, low library tables, and, likely, fixed seats and desks. Similarly, generalizing from tables which are not included here, the equipment of the average second grade includes fixed seats and desks, display boards, low blackboards, and bookcases; and that of the third grade, fixed seats and desks, display boards, and bookcases.

Since four similar tables will be provided in turn to summarize the records for the furniture of the kindergartens and primary grades in cities of thirty thousand to fifty thousand, and four more for cities of more than fifty thousand, at least 132 tables will be needed to summarize the data contained in the second questionnaire, for it comprised 11 sections. All these tables are complete for the questionnaires so far received. Left in this form it is a relatively simple matter to enter the records from any which may be subsequently received in response to follow-up letters.

From the table, not included here, which summarizes the items needed for the pupils' constructive work in early grades, such facts may be gathered as these for the cities with populations ranging from ten thousand to thirty thousand: wrapping paper is provided for all the kindergarten rooms by 52 per cent of the cities; for all first-grade rooms by 33 per cent; for all second-grade rooms by 25 per cent; for all third-grade rooms by 26 per cent. The percentages of these cities which provide soft wood for all kindergarten rooms through successive grades to the third are 37, 15, 6, and 8. Similar percentages for nails are 40, 14, 6, and 6; for boxes, 33, 16, 10, and 7. Crayons and paste are more common. The percentages for crayons are 84, 77, 71, and 73; while those for paste are 81, 78, 79, and 75.

The practice seems to be "equipment for all rooms or for none," as a very small percentage of the cities falls between the columns showing these two classes of distribution in any table. For example, clay is provided for all kindergarten

rooms by 72 per cent of the cities, is not provided for any by 3 per cent, and the item is not checked on the questionnaires returned by 20 per cent. If we add these percentages, the total is 95; this indicates that only 5 per cent of these cities provide clay for some of their kindergarten rooms but not for all. This percentage of omissions is too large to be due to oversight. Evidently, rather than indicate that this item of equipment is not provided, the tendency is to omit it.

Turning now to some of the administrative features necessary to articulated programs for the kindergarten and primary grades, we find that on the average 76 per cent of the pupils enrolled in the primary grades had attended kindergarten. These percentages ranged from 1 to 100. Kindergarten attendance was required for all children in 24 per cent of these cities with populations from ten thousand to thirty thousand.

In two such cities the kindergarten teacher goes with her pupils and teaches them in Grade I, then she again returns to the kindergarten. In one city the teacher accompanies her pupils to the end of Grade III, then returns to the kindergarten again to start her cycle. In one other city rotation begins in the first grade and continues through the third.

Provision for frequent visiting in each other's rooms is common, but it is not by any means a uniform practice in these cities. Provision for the use of equipment and rooms in common is mentioned by 16 per cent of these cities. A common supervisor, promotion standards, and record systems which serve to unite the kindergarten and primary grades are unusual in this group of cities.

Since the information regarding methods of instruction has not yet been gathered, no interpretation of the data thus far accumulated will be attempted. During the coming year it is hoped that this laborious analysis will be completed. An effort will be made to increase the number of replies to each of the questionnaires. They are long, it is true, but careful analysis is being made of each item on each returned blank. The continued co-operation of superintendents, kindergarten and primary supervisors, and teachers is earnestly solicited.

Training for Specific Problems

By EARL W. ANDERSON

THE first year of teaching presents a crucial challenge to those who are interested in and responsible for the training of teachers. This admittedly most difficult period brings into sharp relief the problems of the beginner who has found that his college training has been inadequate. Often the inexperienced teacher is not entirely articulate, and perhaps the greatest values of specific courses are not apparent until revealed in the light of years of teaching experience. However, the beginner, thrown into contact with this multitude of new and diverse problems, does realize some of the deficiencies of his training and is able to offer intelligent suggestions which furnish a basis for study by those who would aid the graduate to weather the trying initial year.

Graduates of the class of 1928, after their first half-year of teaching, were asked a number of questions regarding their duties and difficulties in teaching. At the end of the questionnaire the following sentence appeared: "We shall be glad to have you state on the back of this sheet any additional information concerning your work as a teacher which you think would help or be of interest to us." The comments volunteered in response to this request by twenty beginners form the basis of this report.

Suggestions by beginners were naturally influenced by their college success, by previous indoctrination, by preconceived attitudes, and by the teaching situations in which they found themselves. Those who were teaching out of their fields of preparation were naturally inclined to stress lack of fundamental information, while the tasks of obtaining student co-operation brought forth statements of the need for means of caring for disciplinary problems. Some teachers probably do not recognize some of their most serious needs in teaching or do not know what would be the best preparation for coping with similar difficulties. The comments classified by topics follow:

METHODS IN TEACHING—

"Why are there no courses for Seniors which would directly prepare them for teaching certain subjects and certain grades? Why not, instead of studying vague, abstract theories of teaching, examine the texts used in high schools and suggest ways of approaching adverbs, for instance? Why not, along with calculus and analytical trigonometry, and the Einstein theory of

relativity, give the mathematics teacher-to-be some idea of how to teach the factoring of $3x^2 + x - 14$ when the pupil is a Freshman who does not know what algebra is all about, and who does not see why he has to take it?"

"One of the hardest things is to be able to vary the procedure from day to day. I think that courses which would help the future teacher with this sort of thing, and also with bringing some of the theories into actual practice, giving them concrete bases on which to work, would be highly beneficial. For instance, in the English class, actually take one of the classics, such as *Ivanhoe*, and demonstrate its presentation from day to day, to add variety, and so with other classics and grammar. I surely wish that I might have attended such a course at Ohio State."

"There should be more thorough and practical courses offered dealing with methods of teaching secondary subjects. Plans that are applicable to everyday situations would benefit the neophyte."

"Several courses, or a more comprehensive course, in the teaching of one's major subject should be offered."

"Teachers learn by doing, and there should be preparatory work in planning and organizing a course in literature."

"Make a short course in teaching how to study and how to organize work effectively and perhaps add training in giving tests. More practice and less theory would make the course for teachers much more valuable in many ways."

"It is my opinion, as a first-year teacher in a rural school, that if the universities would prepare us for smaller jobs, ones in which we are to be more or less directly responsible for our own curriculum, instead of teaching us and pointing out to us the ideal system, we would be better prepared."

DISCIPLINE—

"I was not told the importance of discipline and how to obtain and maintain it. If there had been a year's work in practice teaching, instead of ten weeks, I might have learned it. I did not know that teaching cannot be carried on without discipline, and supposed that by being kind, patient, pleasant, and understanding, discipline would take care of itself, for according to Dr. —— it is a matter of keeping the child interested.

"I was taught that discipline is *not* necessary—it is! That professor has certainly never taught forty-three 'pollywogs' as I have now, or he would know. I do not rule with an iron hand, but firmness is the best means of awakening some souls, and often more than that is necessary."

"I think if more psychology of the child of below eighth-grade age were required instead of other educational courses, the young teacher would not find discipline in certain communities so difficult."

PRACTICE TEACHING—

"It seems to me that the greatest improvement in the education of teachers would be a longer and more thorough course in student-teaching. A two-semester course would not be too long. Another suggestion is that the practice work be distributed in different schools. Each teacher should have an opportunity to deal with difficult groups in order that she may grow to sufficient strength to manage any group with which she may come in contact. More practice and less theory would make the course for teachers much more valuable in many ways."

"From my somewhat meager experience in teaching I would suggest that

[*Continued on page 377*]

EDITORIAL COMMENT

Raising Professional Standards

From many sources it appears that we have entered upon a period of oversupply of high-school teachers in the Middle West, and very probably throughout the United States. The problem of oversupply is not a simple one to analyze. We know that there seems to be an undersupply of teachers in certain fields, and that there is an adequate number of teachers for still other subjects.

The most important question in a study of supply and demand is what constitutes a well-trained teacher. We know, for instance, that while teachers who have majored in English are not able to secure positions, many "English" positions in the high schools are filled by teachers who have not majored in English. What holds true for English may likewise be said for other subjects.

Moreover, in many states there are no requirements to guide superintendents and principals in allocating teachers to subjects. Left to themselves, principals of high schools take the easy road without conscientious regard for the welfare of the pupils and assign teachers to the teaching of subjects for many reasons other than those of scholarship and specific teaching ability. This situation is extremely serious in many states.

Now, at the beginning of a period of oversupply, is the time for educational leaders to co-operate with state departments so forcefully and intelligently that poorly prepared teachers, who are now holding positions, will be displaced by better-prepared ones who are unable to secure positions. It is quite certain that if reasonable standards were established and vigorously enforced, the oversupply would be transferred entirely to the level of poorly trained teachers. In this way the excess would become a matter for congratulation rather than regret.

W. W. C.

The Ohio Legislature of 1911 passed an act authorizing the erection of a high-school building on the Ohio State campus. Eight succeeding legislatures were prorogued without granting the necessary funds for the building and its equipment.

In the meantime, the University enrollment has increased several fold, and the College of Education, when judged by number of students attending, ranks third in the country. The request for funds was repeated each year. Finally, the 1929 Legislature granted an appropriation of $400,000 for the building and $50,000 for its equipment.

Two weeks ago at the most northeasterly corner of the Ohio State campus a high picket fence was built which inclosed a contractor's office, a crane, a derrick, and a steam shovel—the work on the high-school building had begun. This building will give substance to a dream of the Dean of the College and of some members of the faculty—a dream which includes a school complete from the kindergarten to the university. Only one unit of the proposed building can now be erected. Later the auditorium, the elementary school, and the kindergarten will be added.

Dean Arps proposes that this unit shall embody the ideal which will actuate the laboratory school when complete. This high school will be devoted to more effective learning—learning which will enable its possessor to participate understandingly in the new social order which is enveloping us. Individual differences will be recognized, for each student will be allowed to proceed as rapidly as his endowments and habits of study will permit. For some students this may mean an abbreviation of the time necessary to complete the course, to others it may mean the enrichment and extension of each field studied.

Student self-government will be encouraged by securing active participation and co-operation of parents with the teachers and the students in class work and in extra-curricular activities. Such democratic living within the school will, it is thought, so accustom each pupil to sharing with others their common responsibilities that when he comes to man's estate he will participate with understanding and earnestness in public affairs.

Liberal education, preparation for the wise use of leisure as well as preparation for a vocation, will be the guiding principle in this high school. It will be a laboratory school, for in each avenue of its activities the principal and teachers will try to embody the best that is known and thought in education.

J. H. M.

The first issue of the *Junior College Journal* has appeared under the joint auspices of the American Association of Junior Colleges and the School of Education of Stanford University. The editor, Walter Crosby Eells, of Stanford University, will be assisted by Doak S. Campbell, associate editor, and a National Advisory Board, with the members of the Executive Committee of the Association acting in an ex officio capacity. The names of Mr. Cooper, United States Commissioner of Education, and of Mr. Suzzallo, president of the Carnegie Foundation for the Advancement of Teaching, appear on the roster of the National Advisory Board with the names of persons who have won for themselves national reputations because of their contributions to the junior-college movement.

This *Journal* is not to be a "proponent of any type of theory of the junior college" nor is it to represent the colleges of any one section of the country. In the editorial, "Why Another Educational Journal?" factual studies as well as contributions of theory, of principles, of inspiration, and of progress are promised. The editor is to be commended for the attractive format of the magazine. This first issue is a harbinger of interesting issues to come.

J. H. M.

* * *

Educational Legislation in Ohio

STUDENTS of education who are interested in developments in Ohio have for a number of years found Miller's monograph[1] very useful. They will now welcome Bossing's recently published work,[2] which continues the account of educational legislation in this state down to 1925.

Bossing's work is not so well done as Miller's. It suffers from having been written by one who, evidently, is unfamiliar with conditions in the state. The fact that a permissive law is not always followed by the action which it authorizes is overlooked. There are a number of errors, of which some are minor

[1] Miller, Edward Alanson. *The History of Educational Legislation in Ohio from 1803 to 1850.* Chicago: University of Chicago Press, 1920 (Supplementary Education Monographs). First published in *Ohio Archaeological and Historical Publications*, XXVII, pp. 1-271.

[2] Bossing, Nelson L. "The History of Educational Legislation in Ohio from 1851 to 1925," *Ohio Archaeological and Historical Quarterly*, XXIX (January and April, 1930), pp. 78-219, 223-399.

in character, but others can be attributed only to inexcusable carelessness. We are informed, for instance, that the law of 1853 placed the employment of teachers in the hands of the township board of education instead of the subdistrict directors, and that the latter "became simply figureheads from the standpoint of authority."[3] We learn that "in the general reorganization of Ohio school system of 1914, the county supplanted the township as the units of school control."[4] We find the author confusing private and public high schools.[5] Most surprising of all, perhaps, is the statement that (in 1911) "the next step in the [Ohio State] University's program came with the establishment of a high-school building on the campus."[6] As a matter of fact, a law was passed that year authorizing the construction of such a building on such terms as might be agreed upon by the University trustees and the Columbus board of education, but it was never built.[7]

This is, however, by far the most complete account we have of the subject, and so, in spite of its shortcomings, will prove very serviceable, if used with care. I am informed that it is to be published later as a separate monograph. In the meantime, education libraries might well secure the two numbers of the *Quarterly* in which it appears.

R. H. ECKELBERRY

THE *News Review*, a new and progressive weekly school newspaper, is now being published by the Macmillan Company. The news, which comes direct from the *New York Times*, is "up to the minute" and simple. A pleasing feature of the two issues which have appeared, numerous beautiful rotogravure illustrations, supplements the news, which is chosen with care and with a knowledge of the interests of children. This newspaper offers to the teacher a fine opportunity to integrate "news of the day" with the study of the social sciences. At $1.60 a subscription yearly for an order of one to four subscriptions and $1.20 each for an order of more than five subscriptions, it is an extremely inexpensive "means to an end."

CONSTANCE LOOMIS

[3] P. 101.

[4] P. 388. *See also* page 122, where the author exaggerates in the same way the changes embodied in the school code of 1914.

[5] P. 204.

[6] P. 255.

[7] *Ohio Laws*, CII, 297.

READINGS

Books to Read

THOMSON, GODFREY H. *A Modern Philosophy of Education.* New York: Longmans, Green and Company, 1929. 283 pp.

> I have ventured to call this book an educational philosophy. I do so in no presumptuous manner, and do not even pretend to be a philosopher in the technical sense. I only use the word to indicate that I wish to look at education as a whole, and try to make as consistent and sensible an idea of that whole as I can.

It is seldom that the first words of a book state a thesis for the discussions to follow as simply and as accurately as does this opening paragraph of Mr. Thomson's. The author presents an inclusive view from the hereditary and environmental factors that play upon the child to the problems confronting the adult and adult education. This view is related to what is happening educationally in America and on the Continent, and the integration is evolved with reference to the University of Edinburgh, the area within which the author operates. Furthermore, at no point does Professor Thomson presume to state dogmatically what philosophy of education should control the educative process. The book radiates a tolerant spirit and is well written.

American educational philosophy receives its share of friendly criticism, particularly as the author finds that Dewey, whom he considers the most influential educational philosopher of his time, will set no aim for the process; and, further, as he discovers that our formulation of the cardinal principles of education leaves no impression of a total process but, rather, is open to "the accusation of carving up a whole." In contrast to the seven cardinal principles he quotes from the English code preamble, noting that the American statement has one advantage: " . . . the advertising advantage of being short and easily quotable from memory." This fact has "resulted in the American list being far more widely known in America than is the English statement in England." "In nobility of statement," he adds, "the English clearly have the advantage."

H. GORDON HULLFISH

HERTZLER, SILAS. *The Rise of the Public High School in Connecticut.* Baltimore: Warwick and York, 1930. xx + 258 pp.

Among the detailed studies of the origins of the American high school which are appearing, the present volume must be given a prominent place. It is a worthy companion to E. D. Grizzell's study of the same institution in New England and devotes a whole volume to a state which receives only twenty-two pages in Grizzell's treatment. The work is a research study based upon examination of the statutes, town and school records, contemporary newspapers, educational journals, and various secondary sources.

After an introduction and two general chapters on origins and on the relations of the high school to the older system of schools, Professor Hertzler treats curriculums, school activities, forms of support and control, the teachers and the pupils of the Connecticut high schools down to 1872. The distinguishing feature of the book is found in the large amount of social information

which it contains: information about the social status, salaries, and training of high-school teachers, and about the ages, interests, and social status of the pupils. The chapter on extra-curricular activities is the freshest in the book.

As far as one can tell from a cursory examination, the historical technique is good; but the presentation lacks interpretation and is made in very uninspired English. The future historian of the American high school will, however, find in this book a useful tool. The volume has a full bibliography and an index and is pretty completely documented.

H. G. Good

Uhl, Willis L., and Others. *The Supervision of Secondary Subjects.* New York: D. Appleton and Company, 1929. xvi + 673 pp.

Of recent books in the field of secondary education, this promises to be one of the most helpful and suggestive. It covers the ground of supervision in such a way as to aid not merely the general supervisor and the department head, but also the individual teacher. It is written by specialists who have earned the right to speak with authority.

In the first chapter the editor, Dean Willis L. Uhl, of the University of Washington, describes the task of the supervisor as that of "knowing the place of each department in a system of education" and "guiding the solution of many problems which few specialists can either see or solve." Then he sets forth certain fundamental objectives for supervisory activities and turns the discussion over to the specialists. On the whole, these specialists treat their subjects from the points of view emphasized by the editor. There results a compendium of practice which is at once helpful and challenging.

Although the editor emphasizes the fact that a supervisor must possess a clear grasp of secondary-school objectives, and also the importance of the coordinating function of the general supervisor, it can still be said that the book under review deals lightly with a fundamental conception of the purposes of secondary education. Nowhere is a philosophy of secondary education clearly enunciated. If it exists, it is tacitly assumed, and consequently the book fails to make explicit a criterion which will operate at once in the organization of curriculums and the selection of subject-matter and procedures within the special subjects of the secondary school. Just because of the widespread influence they will exercise, one regrets that the authors have not faced their problem in the large as well as in detail.

V. T. Thayer

McGregor, A. Laura. *The Junior High School Teacher.* Garden City, New York: Doubleday, Doran and Company, 1929. xv + 284 pp.

Speaking from a wealth of experience in the junior high-school movement, Miss McGregor offers us a book on the junior high-school teacher that is excellent in its content and timely in its appearance. We have reached the stage in the reorganization of secondary education when we must think more definitely than ever before about the training needed for successful teaching in the junior high school. The purpose as stated by the author is, "to present, with as much concrete detail as possible, the teacher and child relationships of the junior high-school years; to show, through description and analysis of

junior high-school life, the human experience that there unfolds; and to suggest, if possible, the atmosphere and outlook that make the junior high school a wholesome environment for pupil and teacher alike." These things Miss McGregor accomplishes through the nine chapters.

The experienced high-school teacher, as well as the young teacher in training, has much to gain from a reading of this book. Through it all, the teacher is seen as more than a teacher of subject-matter—she is a counselor of youth, a director of activities, and a student of educational problems.

D. H. EIKENBERRY

LANE, R. H. *A Work Book for Principals and Supervisors.* New York: Macmillan Company, 1930. viii + 263 pp.

This is a work book designed to provide students with what H. C. Morrison terms "assimilative material" for three courses in education: The Principal and His School, Organization and Supervision of Elementary Education, and The Elementary-School Curriculum. It is accordingly divided into three parts, each dealing with one of these topics. The major purpose of the book is to supply source material and references, propose problems, and supply work sheets which the student can use in solving the problems. The problems vary widely in character, from the concrete and definite task of checking a janitor's effectiveness in oiling hardwood floors to the determination of the possible changes in American education in the next fifty years. Whether or not a student be enrolled in the courses for which the book is designed, he will find in it many tantalizing nuts to crack.

V. T. THAYER

In Paper Covers

NEW YORK PUBLIC SCHOOLS. *Educational Measurements for the Class Teacher.* New York: Bureau of Reference, Research, and Statistics, Board of Education of the City of New York. (Bulletins No. 13, 14, and 15)

These pamphlets represent a continuation of the splendid work which New York City is doing in educational diagnosis and remedial treatment. The bulletins under consideration relate to the fundamentals in arithmetic and to common fractions. Bulletins 13 and 14 contain valuable information as to causes of error, together with both general and special remedial suggestions. Inventories of errors are also presented. Bulletin 15 reports interesting case studies. All three of the bulletins will be of substantial value to all teachers of arithmetic.

W. J. OSBURN

HANNA, PAUL R. *Arithmetic Problem Solving.* New York: Teachers College, Columbia University, 1929. 68 pp.

The purpose of this monograph is to describe a study of the relative effectiveness of three methods of problem-solving in arithmetic, which the author labels as follows: first, the dependencies method; second, the conventional formula method; and third, the individual method.

The dependencies method is illustrated thus: "Sam had 12 marbles. He

found 3 more and then gave 6 to George. How many did Sam have left?" The child is directed to start at the left of his paper and write "number left." He is expected to note that the number left depends on two factors, the total number and the number given away. Consequently, the child is to draw two lines to the right of *number left* and write in the two dependent factors. The child knows the number given away, so he writes *6* just after that phrase on his paper. This leaves the first dependent factor, or *the total number*, still to be considered. This factor depends on two other factors, namely, the number at the start, and the number he found. Two lines are drawn to the right of total number, and the two factors written in. These factors are both known, so their values are recorded. The child is then expected to add *12* and *3* and subtract *6* from the sum, thus arriving at the answer *9*.

The conventional-formula method is the well-known technique of requiring the pupil to answer the questions: What is asked for in the problem? What is given in the problem? How should the given facts be used to secure an answer? and What is the answer?

To solve problems by the individual method, the children are allowed to use whatever method of analysis they desire. This method was used with the control group. Nearly one thousand subjects—twelve classes each from the fourth and seventh grades—were selected for the study. The question of sampling received adequate consideration, and the groups were equated in a satisfactory manner. Pretests were given, followed by practice exercises appropriate for each of the three methods. Learning curves were constructed, and the conclusions were drawn from them.

In stating the final results it is well to remember that the individual method is really no method at all, so far as teaching is concerned. It is neither more nor less than the laissez faire. With this in view, the author's results are illuminating. He finds that the dependencies method is no better than no method at all, and the conventional-formula method is decidedly worse. This is information of great importance.

The study closes with a review of the literature of problem-solving and a complete bibliography. Negative results in a scientific study are sometimes annoying, but they may be of great value. Such is undoubtedly true of the negative results in this study. If the study receives the publicity that it deserves, we shall cease our vagaries and be ready and willing to use methods of teaching problem-solving which really do get results.

W. J. Osburn

Carpenter, W. W., and Rufi, John. "The Teacher and the School; Syllabus of a Course in High School Administration for Teachers." Ann Arbor, Michigan: Edwards Brothers, 1929. (Mimeographed) iv + 123 pp.

Duties and responsibilities that fall to the lot of the high-school teacher in addition to her classroom teaching duties are appreciated by these authors. These extra-classroom activities have been organized into those duties indicated by laws and regulations; responsibilities to the board, superintendent, principal, and supervisors; duties connected with the opening of the school year; giving guidance to pupils; routine administration; responsibilities in

connection with the schedule of recitations; extra-curricular activities; relations with pupils, parents, and patrons; development of public relations; professional improvement; acquaintance with various types of secondary schools; duties in connection with the use and care of the physical plant and with health and safety; a knowledge of tests and measurements; a perception of school costs; responsibilities in connection with the selection of textbooks and other instructional material; and duties in closing the year's work. The discussion of each of the nineteen problems contains a general statement, showing its importance, an outline, questions and assignments, and select bibliography.

The excellence of this syllabus lies in the fact that it gets down to the "brass tacks" of the high-school teacher's job. Training is provided where we have conspicuously failed in the past—in the great number of activities that teachers are actually asked to perform in addition to classroom teaching.

D. H. EIKENBERRY

PLENZKE, O. H., AND DOUDNA, EDGAR G. *The Training and Work of High-School Teachers in Wisconsin in New Positions.* Madison, Wisconsin: State Department of Education, 1930. 16 pp.

The subjects taught by "new" teachers in Wisconsin during the first semester of the year 1929-30 and the extra-curricular activities in which they engaged are listed in detail in this pamphlet. Tables show the number teaching classes in each subject, the total number of classes taught by subject, and the combination of such subjects most frequently found.

Interesting facts presented are that 24 per cent of all high-school teachers in Wisconsin were new in 1929-30; that the median experience of high-school teachers was five years; that the turnover was much more rapid in the smaller schools than in the larger ones. Interesting statements found in the "suggestions for student counselling" were to the effect that "those preparing to teach English [would] find a minor in history, Latin, library, and social science more of a vocational asset than minors in other subjects."

This study gives no direct indication of the competition for positions, but it clearly points out the number of positions open in the various subjects and combinations of subjects. In the fields of Spanish and journalism, the difficulties of securing a position are obvious. In the fields more widely taught, such as English and commercial, the opportunities for securing a position are primarily affected by the competition met. Showing the annual demand for teachers clearly as it does, this bulletin is a definite contribution to the rapidly growing study in the field of supply and demand.

EARL W. ANDERSON

Training for Specific Problems

[*Continued from Page 368*]

a more extensive course in practice work be given. It seems to me that there should be more actual contact with classroom problems. Even if it were necessary to lengthen the preparatory course by one year, it would be worth the time and money spent."

"My practice teaching has not been particularly helpful, although it might have been if I had taught my major subject."

"I think that my very excellent training in practice teaching at Ohio State University helped me more than anything else. In teaching, you learn more by practice and experience than by theory. I would suggest that student-teachers give more attention to lesson-planning, and that they learn something about making out school reports, grade averages, and the like."

OTHER EDUCATIONAL COURSES—

"I wish that the hours spent in education had been devoted to taking courses in general information, as geology, astronomy, more zoölogy, and botany."

"I would advocate lowering the requirement in educational subjects to not more than twenty hours, except for those planning to be supervisors, principals, or superintendents."

"Specific professional education courses were of relatively little value."

ACADEMIC—

"It seems to me, and my classmates agree, that before a student is graduated with a major in English he or she should be required to take a course in grammar. There is no such provision at Ohio State. Courses in advanced literature do not aid one in teaching grammar."

"One of the most valuable aids to effective teaching is the art of expression; therefore, make at least ten hours of public speaking a requirement."

"I would not attempt again to teach a subject like French after having only six quarters in college and none in high school. A minor is not enough to do justice to French II in high school, as that means, in my case, a teacher having but two years of college French is trying to teach second-year French."

EXTRA-CURRICULAR NEEDS AND VALUES—

"There is one thing lacking in the teacher's curriculum: a general course in dramatics and program-making. This is not only my opinion, but that of several on the faculty where I am teaching. The new teacher is put in charge of these activities regardless of ability and knowledge of the subject and expected to produce results."

"College extra-curricular activities have been a great help in my teaching."

"Many beginning teachers in smaller towns have to teach physical education or help in training May Day dances, therefore the physical education department might well introduce a course of suitable games, folk-dances, and specialty dances for junior high and high-school girls."

MISCELLANEOUS—

"One of the most valuable aids to a teacher is a tactful, attractive personality. A personality course such as many colleges are introducing should be made an educational requirement."

"I suggest that the Bureau of Appointments secure from the superintendent hiring a teacher an exact list of studies and classes which the teacher will be expected to teach."

"I spend practically no time on outside preparation. Perhaps this can be attributed to the subjects which I teach, both of which I studied rather extensively in college. I think a thorough knowledge of one's subject and a broad general education is much more valuable than courses in education."

NEW TESTS

No need is more imperative in the field of testing than the development of valid and accurate methods for measuring those school attainments of pupils which are not wholly informational in character. The progress of pupils in gaining ability to think, in acquiring wholesome, satisfying interests, in perfecting important skills rarely receives any adequate measurement. Yet who can feel that he has a satisfactory measure of what pupils are learning in school if he has no index of these neglected phases of development?

In science subjects the shortage of tests for measuring several types of attainments which are considered of major importance is noticeable. The habit of applying "scientific method," the habit of accurate observation, skill in laboratory manipulation, ability to draw reasonable inferences, skill in testing hypotheses, ability to apply principles to new situations, the attitude of willingness to modify opinions in accordance with newly discovered facts are examples of science objectives most earnestly desired yet withal so inadequately measured that there is little objective evidence of a pupil's progress in these phases of science work.

K. M. Persing, of Glenville High School, Cleveland, has prepared and the Public School Publishing Company, Bloomington, Illinois, has published a Laboratory Chemistry Test which is a useful contribution to the field of tests not purely informational in character. Besides information, this test measures the pupil's ability to apply various principles of chemistry to laboratory situations. By means of appropriate diagrams these laboratory situations are more vividly presented than would be possible through word descriptions only.

Although the test is not organized nor recommended for diagnostic purposes, its construction undoubtedly will serve as a stimulus for various teachers to prepare more extensive diagnostic measures of laboratory work. The laboratory situations were selected by the author, an experienced chemistry teacher, from an analysis of common chemistry experiments.

The preliminary trial of the Persing test was made with 1,726 pupils in twenty-five schools. The reliability coefficient between Form A and Form B with these groups was found to

be .87, indicating that the test will give an accurate rating of groups, and when combined with other measures, or when both forms are used together, an accurate measure of individual pupils is obtained. Norms are available from the tryout.

Another well-constructed science test, though it does not contribute a method of measuring non-informational attainments, is the Presson Biology Test. John M. Presson, of the Department of Biology, Girard College, Philadelphia, is the author, and the World Book Co., Yonkers-on-Hudson, New York, are the publishers.

This test is made up of two parts of two forms each. Test 1 covers plant biology, and Test 2, animal biology. The selection of items was made by 19 biology teachers from an original list of fifteen hundred items obtained from an analysis of seven widely used textbooks, of the examination questions of 142 biology teachers in 45 states, of the biology questions contained in the examinations of the College Entrance Board and the Board of Regents for a recent ten-year period, and of 58 courses of study. From this extensive analysis it is apparent that the test items are certain to cover common informational elements of the biology courses throughout the country. Confidence in the representativeness of the selection of items is heightened by the close correlation of this test with the Ruch-Cossmann Biology Test ($r = .83$).

Each part of the test requires about 40 minutes to administer. In the preliminary trial with 2,115 pupils in 37 schools the reliability of each part was found to be about .90. This is reasonably high and indicates that when the two parts are administered, the results may be used with some confidence as a means of measuring individual pupils, and that even one part will give fairly reliable scores for individuals. Norms and percentile curves are available from the preliminary trial.